

AMENDMENTS TO THE CLAIMS

Please cancel present claims and substitute the following new claims.

29. (New) A method for avoiding improper machine activation in a computer control system, the computer control system having a multi-axis machine tool having an improper-activation safety module and a computer system for generating the machine control parameters for the multi-axis machine tool, said system for generating the machine control parameters generating machine control parameters to activate the multi-axis machine tool, said system for generating the machine control parameters having a memory or an encryption module allowed to be read out via a reader in which a sender decryption key and a sender identification and a machine tool encryption key for said multi-axis machine tool are stored, and the multi-axis machine tool having a memory or a decryption module allowed to be read out via a reader in which a machine tool decryption key, a sender encryption key and a sender identification are stored, the method comprising:

encrypting the machine control parameters using said sender decryption key to obtain first-encrypted machine control parameters,

adding said sender identification to the first-encrypted machine control parameters,

encrypting the first-encrypted machine control parameters including said added sender identification using said machine tool encryption key to obtain second-encrypted machine control parameters, and

generating a data carrier or an electronic carrier signal with the second-encrypted machine control parameters for reading into the the multi-axis machine tool,

using each the data processing unit and the memory of said computer system for generating machine control parameters for said multi axis machine tool.

30. (New) A method for avoiding improper machine activation in a computer control system, the computer control system having a multi-axis machine tool having an improper-activation safety module and a computer system for generating the machine control parameters for the multi-axis machine tool, said system for generating the machine control parameters generating machine control parameters to activate the multi-axis machine tool, said system for generating the machine control parameters having a memory or an encryption module allowed to be read out via a reader in which a sender decryption key and a sender identification and a machine tool encryption key for said multi-axis machine tool are stored, and the multi-axis machine tool having a memory or a decryption module allowed to be read out via a reader in which a machine tool decryption key, a sender encryption key and a sender identification are stored, the method comprising:

reading in asymmetrically-encrypted machine control parameters from a data carrier or via an electronic carrier signal generated by said system for generating the machine control parameters using means for reading in said machine control parameters into the multi-axis machine tool;

decrypting the encrypted machine control parameters using said machine tool decryption key to obtain first-decrypted machine control parameters using the improper-activation safety module of the multi-axis machine tool;

reading the sender identification from the first-decrypted machine control parameters using the improper-activation safety module of the multi-axis machine tool;

determining if the computer system for generating the machine control parameters for the multi-axis machine tool is authorized to generate the machine control parameters for the multi-axis machine tool based on the sender identification using the improper-activation safety module of the multi-axis machine tool; and, if so,

decrypting the first-decrypted machine control parameters using the sender encryption key to obtain the machine control parameters using the improper-activation safety module of the multi-axis machine tool.

31. (New) A method of avoiding improper machine activation of a multi-axis machine tool by machine control parameters read into the multi-axis machine tool from a computer system that generates the machine control parameters for the multi-axis machine tool, comprising:

- assigning a sender encryption key, a sender decryption key, and a sender identification to said computer system that generates the machine control parameters, said sender encryption key being different from said sender decryption key;

- assigning a machine tool encryption key and a machine tool decryption key to said multi-axis machine tool, said machine tool decryption key being different from said machine tool encryption key;

- providing a data processing unit and a memory, or an encryption module, to be read via a reader in said computer system for generating machine control parameters for said multi axis machine tool;

- activating the data processing unit and the memory, or the encryption module, of said computer system to generate machine control parameters for said multi axis machine tool;

- encrypting the machine control parameters generated to activate said multi-axis machine tool using said sender decryption key to obtain first-encrypted machine control parameters ,

- adding said sender identification to the first-encrypted machine control parameters;

- encrypting the first-encrypted machine control parameters including said added sender identification using said machine tool encryption key to obtain second-encrypted machine control parameters;

- providing an improper-activation safety module in said multi-axis machine tool to receive the second encrypted machine control parameters from the computer system;

- when the second-encrypted machine control parameters are received in said multi-axis machine tool, decrypting the second-encrypted machine control parameters using said machine tool decryption key to obtain first-decrypted machine control parameters using said improper-activation safety module in the

multi-axis machine tool, wherein decrypting the second-encrypted machine control parameters in said machine tool with the decryption key verifies that the machine control parameters were actually generated for the machine tool;

reading the sender identification from the first-decrypted machine control parameters in said improper activation safety module in the multi-axis machine tool;

authenticating the computer system for generating the machine control parameters for the multi-axis machine using said sender identification and a suitability of said sender encryption key for further decrypting the first-decrypted machine control parameters in said improper-activation safety module in the multi-axis machine tool, wherein authenticating the computer system for generating the machine control parameters for the multi-axis machine tool verifies that the computer system for generating the machine control parameters for the multi-axis machine tool is actually suitable and authorized to generate the machine control parameters for the multi-axis machine tool; and

when the computer system for generating the machine control parameters for the multi-axis machine tool is authenticated, decrypting the first-decrypted machine control parameters using said sender encryption key to obtain the machine control parameters using said improper-activation safety module in the multi-axis machine tool.

32. (New) A computer controlled machine tool system with provisions for avoiding improper machine activation comprising:

a control computer having a data processing unit and memory, or encryption module, for generating machine control parameters to activate a multi-axis machine tool, the data processing unit and memory, or an encryption module, having stored within a sender decryption key, a sender identification and a machine tool encryption key, the sender encryption key and sender identification being assigned to the control computer, and the machine tool encryption key being assigned to the machine tool, the data processing unit, or encryption module, when activated to generate machine control parameters for

the multi-axis machine tool utilizing the sender decryption key to obtain first-encrypted the machine control parameters, then adding the sender identification to the first-encrypted machine control parameters and using a machine tool encryption key assigned to the machine tool to obtain second-encrypted machine control parameters; and

a multi-axis machine tool receiving the second-encrypted machine control parameters from the control computer and having an improper-activation module including

a memory, or a decryption module, having stored within a machine tool decryption key, a sender encryption key and the sender identification, the machine tool decryption key being assigned to the machine tool and the sender encryption key being assigned to the control computer, the sender encryption key being different from the sender decryption key, and the machine tool decryption key being different from the machine tool encryption key;

the improper-activation module receiving and decrypting the second-encrypted machine control parameters from the control computer using the machine tool decrypting key to obtain first-decrypted machine control parameters and to verify from the first-decrypted machine control parameters that the received control parameters were actually generated for the machine tool,

the improper-activation module also authenticating the control computer using the sender identification and the suitability of the sender encryption key for further decrypting the first-decrypted machine control parameters thereby verifying that the control computer is actually suitable and authorized to generate machine tool parameters for the multi-axis machine tool and

the improper-activation module upon authentication of the control computer also decrypting the first-decrypted machine tool parameters utilizing the sender encryption key to obtain non-encrypted machine control parameters for use by the multi-axis machine tool.